(Substitute abstract)

ABSTRACT

A femtosecond or picosecond laser beam is split into first and second laser beams which are irradiated onto an optical fiber core at an interference angle of 90 degrees to generate a change in the refractive indices of the optical fiber core, depending on the light intensity distribution of the interference fringes, such that a grating is written in the core.

ABSTRACT

A femtosecond ~~laser radiation~~ or ~~a~~ picosecond laser beam ~~radiation output from light source 6~~ is split into ~~a~~ first ~~beam~~ and second laser beams which are ~~reflected to an angle of 90 degrees by a beam splitter 7 and a straightly advancing second beam cut out by the beam splitter 7. The first beam is reflected at an angle of 90 degrees by a second reflecting mirror 9, reflected again at an angle of 90 degrees by a fourth reflecting mirror 11, and is collimated by a second lens 15 to be irradiated onto an optical fiber core wire 13 to be written. The second beam is reflected at an angle of 90 degrees by a first reflection mirror 8, reflected again at an angle of 90 degrees by a second reflection mirror 10, and is collimated by a first lens 14 to be~~ irradiated onto an ~~the~~ optical fiber core at an interference angle of 90 degrees ~~wire 13 to be written. The femtosecond laser output from the light source 6 is split into two by the beam splitter 7, which interfere with each other in the vicinity of the core of the optical fiber core wire 13~~ to generate a change in the refractive indices of the optical fiber core ~~glass~~ depending on the light intensity distribution of the interference fringes, such that a grating is ~~the gratings are~~ written in the core ~~1~~.